

**BUREAU OF LAND MANAGEMENT
ROSWELL FIELD OFFICE**

Environmental Assessment Checklist, EA# NM-510-2008-91 Cazador Federal. Com. #1

Resources	Not Present on Site	No Impacts	May Be Impacts	Mitigation Included	BLM Reviewer	Date
Air Quality			X	X	/s/ Michael McGee Hydrologist	5/19/2008
Soils	X					
Watershed Hydrology			X	X		
Floodplains						
Water Quality - Surface						
Water Quality - Ground		√			/s/ Jerry Dutchover Geologist/Hydrologist	06/05/08
Cultural Resources	X				/s/Rebecca L. Hill 05-R-026-A Archeologist	5/7/08
Native American Religious Concerns	X					
Paleontology	X					
Areas of Critical Environmental Concern	X				/s/J H Parman Plan & Environ. Coordinator	5/6/08
Farmlands, Prime or Unique		x			/s/sanderford Realty Specialist	6/11/08
Rights-of-Way		x				
Invasive, Non-native Species			√	√	Joseph M. Navarro Range Mgmt. Spec.	5/14/08
Vegetation			√	√		
Livestock Grazing			√	√		
Wastes, Hazardous or Solid	X				R. Hill HMS/ EPS	6/5/08
Threatened or Endangered Species	X				/s/ D Baggao Biologist	5/19/08
Special Status Species	X					
Wildlife			X	X		
Wetlands/Riparian Zones	X					
Wild and Scenic Rivers	X				/s/ Bill Murry Outdoor Rec. Planer.	5/21/08
Wilderness	X					
Recreation		X				
Visual Resources			X			
Cave/Karst			X			
Environmental Justice	X				R. Hill	6/5/08
Public Health and Safety	X				Environ .Prot. Spec.	
Solid Mineral Resources		√			/s/ Jerry Dutchover Geologist	06/05/08
Fluid Mineral Resources		√			/s/ Jerry Dutchover Geologist	06/05/08
Communitization		X			/S/ David Glass Pet Engineer	05/06/2008

BUREAU OF LAND MANAGEMENT ROSWELL FIELD OFFICE

ENVIRONMENTAL ASSESSMENT # NM-510-08-91 Lease Number NMNM108037 Cazador Federal Com. #1

1.0 Introduction

The E½ Sec. 8 is dedicated to this Cisco gas well and a Communitization Agreement will be required if this well is completed as a producing gas well.

Nadel and Gussman Permian, L.L.C. has filed an Application for Permit to Drill (APD) to drill Cazador Federal Com. #1 gas well. The well will be reentered.

Section 8, T. 13 S., R. 27 E., Chaves County, New Mexico
2034' FNL and 660' FEL, Section 8.

An off-lease right-of-way will be required for the access road across public land described as:

T. 12 S., R. 27 E., Chaves County, New Mexico
Section 33, SW¼SW¼SW¼.

The road is fully constructed and no new disturbance will be created.

This site-specific analysis tiers into and incorporates by reference the information and analysis contained in the Roswell Resource Area Proposed Resource Management Plan Final Environmental Impact Statement (PRMP/FEIS). This document is available for review at the Roswell Office. This project EA addresses site-specific resources and/or impacts that are not specifically covered within the PMP/FEIS, as required by the National Environmental Policy Act of 1969 (NEPA), as amended (Public Law 91-90, 42 U.S.C. 4321 et seq.).

1.1 Purpose and Need

The purpose for the proposal is to define and produce oil or natural gas on one or more valid Federal mineral lease issued to the applicant by the BLM. It is the policy of the BLM to make mineral resources available for disposal and to encourage development of mineral resources to meet National, regional, and local needs. The Mineral Leasing Act of 1920 (MLA), as amended [30 USC 181 et seq.], authorizes the BLM to issue oil and gas leases for the exploration of oil and gas, and permit the development of those leases. An approved Application for Permit to Drill (APD), issued by the BLM, would authorize the applicant to construct and drill a well.

1.2 Conformance with Applicable Land Use Plan and Other Environmental Assessments

Pursuant to 40 Code of Federal Regulations (CFR) 1508.28 and 1502.21, this site-specific EA tiers to and incorporates by reference the information and analysis contained in the Roswell Resource Area Proposed Resource Management Plan/Final Environmental Impact Statement (PRMP/FEIS, BLM [January 1997]), which was approved as the Approved Resource Management Plan for the Roswell Field Office (RFO) of the BLM by the Record of Decision (ROD) signed October 10, 1997. The PRMP/FEIS and ROD are available for review at the Roswell Field Office, Roswell, New Mexico.

This EA addresses the resources and impacts on a site-specific basis as required by the National Environmental Policy Act (NEPA) of 1969, as amended (Public Law 91-90, 42 USC 4321 et seq.). The proposed project would not be in conflict with any State, local, or county plans.

1.3 Federal, State or Local Permits, Licenses or Other Consultation Requirements

Under Section 402 of the Clean Water Act (as amended), the U.S. Environmental Protection Agency (EPA), was directed to develop a phased approach to regulate storm water discharges under the National Pollutant Discharge Elimination System (NPDES) program. Industrial activities disturbing land may require permit coverage through a NPDES storm water discharge. Depending on the acreage disturbed, either a Phase I industrial activity (5 or more acres disturbance) or a Phase II small construction activities (between 1 and 5 acres disturbance) permit may be required. Additionally, an U.S. Army Corps of Engineers Section 404 permit for the discharge of dredge and fill materials may also be required. Additionally, a New Mexico Surface Water Quality Bureau 401 certification may also be required under a U.S. Army Corps of Engineers Section 404 permit. Operators are required to obtain all necessary permits and approvals prior to any disturbance activities.

Roswell Field Office staff reviewed the proposed action and determined it would be in compliance with threatened and endangered species management guidelines outlined in the 1997 Biological Assessment (Cons. #2-22-96-F-102). No further consultation with the U.S. Fish and Wildlife Service is required.

Compliance with Section 106 responsibilities of the National Historic Preservation Act are adhered to by following the BLM – New Mexico State Historic Preservation Officer protocol agreement, which is authorized by the National Programmatic Agreement between the *BLM*, the *Advisory Council on Historic Preservation*, and the *National Conference of State Historic Preservation Officers*, and other applicable BLM handbooks.

Additionally, the Operator is required to:

- Comply with all applicable Federal, State and local laws and regulations.
- Obtain the necessary permits for the drilling, completion and production of this well including water rights appropriations, the installation of water management facilities, water discharge permits and relevant air quality permits.

- Certify that a Surface Use Agreement has been reached with private landowners where required.

2.0 Alternatives Including the Proposed Action

2.1 Alternative A - No Action

The BLM NEPA Handbook (H-1790-1) and the National Environmental Policy Act and associated Code of Federal Regulations state that for EAs on externally initiated proposed actions, the No Action Alternative means that the proposed activity would not take place. The No Action Alternative is presented for baseline analysis of resource impacts, and if selected, would deny the approval of the proposed application. Current land and resource uses would continue to occur in the proposed project area. No mitigation measures would be required.

2.2 Alternative B - Proposed Action

1. Nadel and Gussman Permian, L.L.C. proposes to reenter the Cazador Federal Com. #1 gas well. The well pad is located on private surface and federal minerals. The original well pad was not reclaimed and will be utilized again for this proposed action. The proposed well pad would be 250 feet long by 290 feet wide (minus the historic reserve pit 100' X 75' located on the north side of the well pad).

A Sundry Notices and Reports on Wells was submitted to the Roswell Field Office on 5/30/2008 to amend the APD. Nadel and Gussman Permian, L.L.C. proposes to drill the well with a closed loop mud system rather than the original indicated reserve pit system. The closed loop system is an acceptable drilling component for the proposed action.

Standard oilfield construction equipment consisting of; track-type tractors, motor graders, dump trucks and water trucks would be used to construct the access road and well pad. A rotary drilling rig would be used to drill the well to a depth of 6,500 feet. Associated production facilities (e.g., pipeline, separator, storage tanks, etc.) would be installed during the production phase of this well.

2. There is an existing road from the dedicated road to the well pad. The road is fully constructed and no new disturbance will be created. The existing road is approximately 13,600 feet in length, beginning from the Merlinda County road to the proposed well pad. The existing road was originally constructed when the initial Cazador Federal Com. #1 gas well was drilled. The existing road has a driving surface (travelway) of 14 feet, with a maximum 30-foot wide surface disturbance area. The existing road accesses southeast corner of the well pad. All other existing access roads would be maintained in a good or better condition than those existing at commencement of operations.

Proposed Well Information:

Well Name	Number	Township	Range	Section	Lease Number	Date Lease Issued
Cazador Federal Com.	1	13 S.	27 E.	8	NMNM108037	02/08/2002

County: Chaves County, New Mexico

Applicant: Nadel and Gussman Permian, L.L.C.

Surface Owner: Mr. Billy Hill, Private Surface Landowner

2.3 Alternatives Considered But Not Analyzed In Detail

Relocate the Proposed Action:

The well location is determined on the basis of subsurface geologic information. No other alternative location would have significantly fewer impacts than, or have a clear advantage over, the projected location. Therefore, the alternative of changing the location involved in this action is not analyzed further in this EA.

3.0 Affected Environment

This section describes the environment that would be affected by implementation of the alternatives described in Section 2. Aspects of the affected environment described in this section focus on the relevant major resources or issues. Certain critical environmental components require analysis under BLM policy. Only the aspects of the affected environment that are potentially impacted are described. The following elements are not present: Areas of Critical Environmental Concern, Prime or Unique Farmlands, Floodplains, Wild and Scenic Rivers, Wilderness or Wilderness Study Areas, Paleontology, and Wild Horses and Burros.

3.1 Air Quality

The area of the proposed action is considered a Class II air quality area. A Class II area allows moderate amounts air quality degradation. The primary sources of air pollution are dust from blowing wind on disturbed or exposed soil and exhaust emissions from motorized equipment.

The Environmental Protection Agency's (EPA) U.S. Greenhouse Gas inventory lists six types of gases which contribute to global average radiative forcing on global warming potential. These gases include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). The levels of these greenhouse gases (GHG) have been increasing and are expected to continue increasing. These emissions are present because of the oil and gas development within the Roswell Field Office.

Through complex interactions on a regional and global scale, these GHG emissions cause a net warming effect of the atmosphere, primarily by decreasing the amount of heat energy radiated by the Earth back into space.

Although GHG levels have varied for millennia (along with corresponding variations in climatic conditions), recent industrialization and burning of fossil carbon sources have caused CO₂ concentrations to increase dramatically, and are likely to contribute to overall climatic changes, typically referred to as global warming. Increasing CO₂ concentrations also lead to preferential fertilization and growth of specific plant species.

In 2001, the Intergovernmental Panel on Climate Change (IPCC) indicated that by the year 2100, global average surface temperatures would increase 1.4 to 5.8°C (2.5 to 10.4°F) above 1990 levels. The National Academy of Sciences (2006) has confirmed these findings, but also indicated that there are uncertainties regarding how climate change may affect different regions. Computer model predictions indicate that increases in temperature will not be equally distributed, but are likely to be accentuated at higher latitudes. Warming during the winter months is expected to be greater than during the summer, and increases in daily minimum temperatures is more likely than increases in daily maximum temperatures.

Several activities occur within the planning area that may generate GHG emissions. Oil and gas development, large fires, and recreation using combustion engines, can potentially generate CO₂ and methane

3.2 Cultural Resources

The project falls within the Southeastern New Mexico Archaeological Region. This region contains the following cultural/temporal periods: Paleoindian (ca. 12,000-8,000 B.C.), Archaic (ca. 8000 B.C. –A.D. 950), Ceramic (ca. A.D. 600-1540) Protohistoric and Spanish Colonial (ca. A.D. 1400-1821), and Mexican and American Historical (ca. A.D. 1822 to early 20th century). Sites representing any or all of these periods are known to occur within the region. A more complete discussion can be found in *Living on the Land: 11,000 Years of Human Adaptation in Southeastern New Mexico An Overview of Cultural Resources in the Roswell District*, Bureau of Land Management published in 1989 by the U.S. Department of the Interior, Bureau of Land Management.

3.3 Native American Religious Concerns

A review of existing information indicates the proposed action is outside any known Traditional Cultural Property.

3.4 Environmental Justice

Executive Order 12898 requires Federal agencies to assess projects to ensure there is no disproportionately high or adverse environmental, health, or safety impacts on minority and low-income populations.

3.5 Invasive & Noxious Weeds

There are no known populations of invasive or noxious weed species on the proposed access road and well pad.

Infestations of noxious weeds can have a disastrous impact on biodiversity and natural ecosystems. Noxious weeds affect native plant species by out-competing native vegetation for light, water and soil nutrients. Noxious weeds cause estimated losses to producers \$2 to \$3 billion annually. These losses are attributed to: (1) Decreased quality of agricultural products due to high levels of competition from noxious weeds; (2) decreased quantity of agricultural products due to noxious weed infestations; and (3) costs to control and/or prevent the noxious weeds.

Further, noxious weeds can negatively affect livestock and dairy producers by making forage either unpalatable or toxic to livestock, thus decreasing livestock productivity and potentially increasing producers' feed and animal health care costs. Increased costs to operators are eventually borne by consumers.

Noxious weeds also affect recreational uses, and reduce realty values of both the directly influenced and adjacent properties.

Recent federal legislation has been enacted requiring state and county agencies to implement noxious weed control programs. Monies would be made available for these activities from the federal government, generated from the federal tax base. Therefore, all citizens and taxpayers of the United States are directly affected when noxious weed control prevention is not exercised.

3.6 Threatened or Endangered Species

Under Section 7 of the Endangered Species Act of 1973 (as amended), the BLM is required to consult with the U.S. Fish and Wildlife Service on any proposed action which may affect Federal listed threatened or endangered species or species proposed for listing. The Roswell Field Office; Wildlife Biologist reviewed and determined the proposed action is in compliance with listed species management guidelines outlined in the 1997 Biological Assessment (Cons. #2-22-96-F-102). No further consultation with the Service is required.

There are no known threatened or endangered species of plant or animals within the project area. The list of federal threatened, endangered and candidate species reviewed for this EA can be found in Appendix 11 of the Roswell Approved RMP (AP11-2).

3.7 Wastes, Hazardous or Solid

The operator will use a closed-loop system to drill this well in lieu of requiring on-site pit burial. The closed-loop system will allow the disposal of the well cuttings to be hauled off the well site and properly disposed of in an authorized disposal site.

The close proximity of the historic reserve pit could be affected during the conduct of the operations which will require the initiation of NMOCD Rule 50, [Pit or Below-Grade Tank Registration or Closure (Form C-144)] to become applicable if the historic reserve pit is disturbed during the conduct of operations.

3.8 Water Quality

Surface:

Surface water within the area is affected by geology, precipitation, and water erosion. Factors that currently affect surface water resources include livestock grazing management, oil and gas development, recreational use and brush control treatments. Ephemeral surface water within the area may be located in tributaries, playas, alkali lakes and stock tanks. No perennial surface water is found on public land in the area of operations.

Ground:

Groundwater within the area is affected by geology and precipitation. Factors that currently affect groundwater resources in the area include livestock grazing management, oil and gas development, groundwater pumping and possible impacts from brush control treatments. Most of the groundwater in the area is used for industrial, rural, domestic and livestock purposes.

Useable water is anticipated to be encountered in the Alluvium and the Artesia Group. According to the NM SEO the deepest occurrence of water for this area is 200 ft. Deepest expected useable water at 200 ft.

3.9 General Topography/Surface Geology

The topographic characteristics and/or regional setting of the project area are: The area of the proposed action has been previously disturbed and general topography of the area will not be affected. The access road and well pad is fully constructed. The existing well pad is in an area that is fairly flat with a small mound on the south side that was used to extract private mineral material to surface the well and access road.

3.10 Mineral Resources

There are no known nearby sources of federally owned construction material (caliche/gravel) for surfacing the access road and well pad. Material could be obtained by the operator from a private source if available.

3.11 Soil

The *Soil Survey of Chaves County, New Mexico, Southern Part (USDA Soil Conservation Service 1980)* was used to describe and analyze impacts to soils from the proposed action. The soil map units represented in the project area are:

Holloman-Gypsum-land complex, 30 to 50 percent slopes (HSE) Runoff is rapid and the hazard of water erosion is severe and the hazard of soil blowing are moderate.

Tencee-Sotim association, 0 to 9 percent slopes (TS) For Tencee soils the hazard of water erosion is moderate and the hazard of soil blowing is slight. For Sotim soils the hazards of water erosion and soil blowing are moderate. Runoff is medium.

3.12 Watershed – Hydrology

The watershed and hydrology in the area is affected by land and water use practices. The degree to which hydrologic processes are affected by land and water use depends on location, extent, timing and the type of activity. Factors that currently cause short-lived alterations to the hydrologic regime in the area include livestock grazing management, recreational use activities, groundwater pumping and also oil and gas developments such as a well pad, permanent and temporary road, pipeline and powerline.

3.13 Vegetation- GRASSLAND CUMMUNITY

This lease is within the Grassland community as identified in the Roswell Resource Management Plan/Environmental Impact Statement (RMP/EIS). Appendix 11 of the Draft RMP/EIS describes the Desired Plant Community (DPC) concept and identifies the components of each community. Components of this grassland community are plant species such as shrubs; yucca (*Yucca* spp.), catclaw (*Acacia* spp.), cholla (*Opuntia spinosa*), snakeweed (*Gutierrezia sarothrae*), sumac (*Rhus* spp.), dogweed (*Dyssodia* spp.) and coldenia (*Coldenia* spp.). Grasses of this plant community are tobosa (*Pleuraphis mutica*), burrograss (*Scleropogon brevifolius*), alkali sacaton (*Sporobolus airoides*), black grama (*Bouteloua eriopoda*), blue grama (*Bouteloua gracilis*), threeawn (*Aristida* spp.), panic grasses (*Panicum* spp.) along with lesser amounts of forbs species such as globemallow (*Sphaeralcea* spp.) and bladderpod (*Lesquerella* spp.).

The Ecological Site Description for the well pad and access road is (SD-3 Sandy- Southern Desertic Basins, Plains & Mountains).

3.14 Livestock Grazing/Range

This proposed action is located on BLM grazing allotment #65069 Calumet Ranch, permitted to Conejo Cattle Company c/o B.G. Hill. Current permitted use is 438 AU's year long @ 344% public land for 1,787 AUM's Animal Unit Months. Cattle and horses are the class of livestock authorized.

3.15 Wildlife

The vegetation found at this site provides habitat to a large range of wildlife species. Some of the common mammals are mule deer, pronghorn, badger, coyote, fox, jackrabbit, cottontails, kangaroo rats, and pocket gophers. It also provides habitat for a variety of grassland and desert birds. Important passerine birds include meadowlarks, horned larks, lark buntings, Cassin's sparrows, lark sparrows, Chihuahuan ravens, and loggerhead shrikes.

Other birds include scaled quail, mourning doves, roadrunners, common nighthawks, killdeer, and a variety of raptors including red tailed and Swainsons hawks, northern harriers, great horned owls, and burrowing owls. It also provides habitat to a large variety of common lizards and snakes.

3.16 Special Status Species

In accordance with BLM Manual 6840, BLM manages certain sensitive species not federally listed as threatened or endangered in order to prevent or reduce the need to list them as threatened or endangered in the future. Included in this category are State listed endangered species and Federal candidate species which receive no special protections under the Endangered Species Act. Special status species with potential to occur in the proposed project area are listed in Table 3.22.1.

There are no known special status species in the project area.

3.17 Visual Resources

Visual Resource Management (VRM Class IV) on public land is conducted in accordance with BLM Handbook 8410 and BLM Manual 8411.

3.18 Recreation

The area around the proposed action site is primarily used by recreational visitors engaged in hunting, caving, sightseeing, driving for pleasure, off-highway vehicle use, and other recreational activities. Non-recreation visitors include oil and gas industrial workers and ranchers.

3.19 Cave/Karst

No surface cave/karst features were observed in the immediate vicinity of the proposed actions. However, the proposed action is located in the *High Karst Potential Area*.

3.20 Public Health and Safety

The project will not be detrimental to public health. The operator will insure that all phases of the project operations are conducted in workman like manner. Precautionary procedures and/or measures will be strictly adhered to in order provide a safe and sound working environment for the general existence of the well.

4.0 Environmental Consequences and Proposed Mitigation Measures

No Action Alternative

Under the No Action Alternative, the proposed well would not be drilled. There would be no new impacts from oil and gas production to the resources.

The No Action Alternative would result in the continuation of the current land and resource uses in the project area and is used as the baseline for comparison of alternatives.

Alternative B

Under Alternative B, the Proposed Action, the well would be drilled as originally proposed, without changes to reduce the potential impact to the environment. A summary of potential surface disturbance is presented in Table 4.0. Descriptions of potential impacts on individual resources for action alternatives is presented in the following text. Also described are mitigation measures that could be incorporated by the BLM where appropriate as Conditions of Approval attached to the permit.

Table 4.0 Summary of Disturbance

Facility	Number of Miles	Acreage of Disturbance	Duration of Disturbance
Well Pad		1.7	Long Term
Existing Road	2.5	9.4	Long Term
Road ROW	0.06	0.21	Long Term

Short-term impacts are those which can be stabilized or mitigated rapidly (within 5 years). Long-term impacts are those that would substantially remain for more than 5 years.

4.1 Air Quality

The area of the proposed action is considered a Class II air quality area. A Class II area allows moderate amounts air quality degradation. The primary sources of air pollution are dust from blowing wind on disturbed or exposed soil and exhaust emissions from motorized equipment.

4.1.1 Direct and Indirect Impacts

Air quality would temporary be directly impacted with pollution from exhaust emissions, chemical odors, and dust that would be caused by the motorized equipment used to construct the access road, well pad, and by the drilling rig that will be used to drill the well. Dust dissemination would discontinue upon completion of the construction phase of the access road and well pad. Air pollution from the motorized equipment would discontinue at the completion of the drilling phase of the operations. The winds that frequent the southeastern part of New Mexico generally disperse the odors and emissions. The impacts to air quality would be greatly reduced as the construction and drilling phases are completed. Other factors that currently affect air quality in the area include dust from livestock herding activities, dust from recreational use, and dust from use of roads for vehicular traffic.

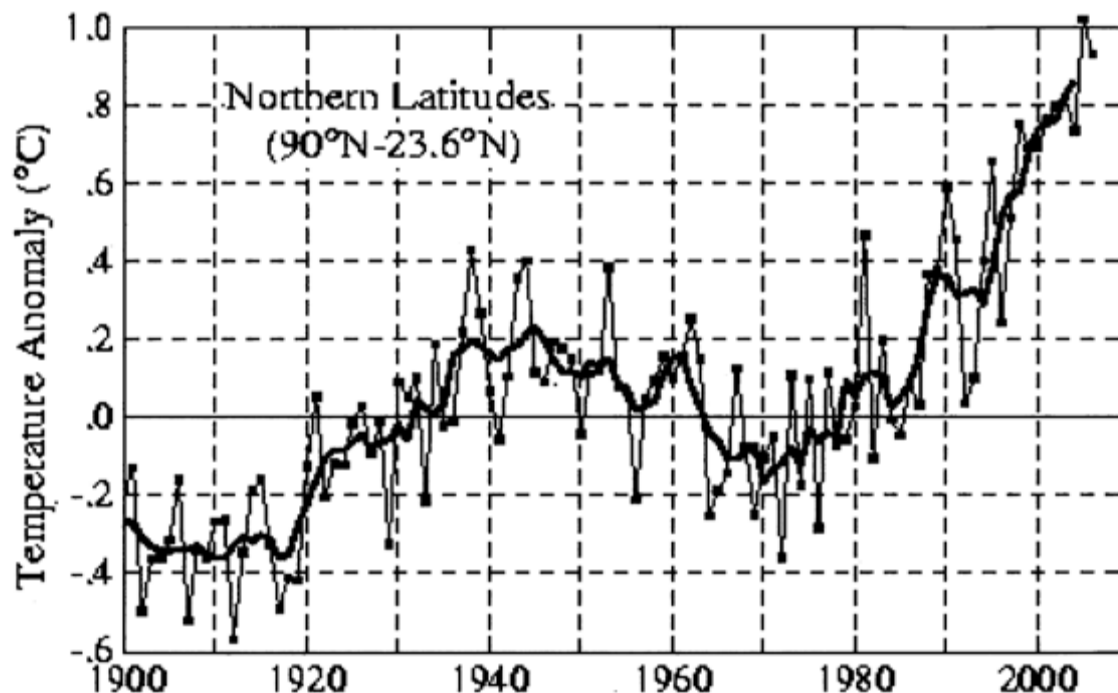
The New Mexico Greenhouse Gas Inventory and Reference Case Projection 1990-2020 estimates that totals approximately 19.6 million metric tons of both CO₂ and CH₄ emissions are produced each year by oil and natural gas production, processing, transmission and distribution.

Of the 19.4 million metric tons, approximately 17.3 million metric tons can be attributed to natural gas activities and 2.3 million metric tons can be attributed to oil production.

From 2001 to 2007 an average of 1,663 per year of new oil and natural gas wells were drilled. (See NM Oil Conservation Division statistics.) An average of 60 wells per year are drilled for Federal minerals within the Roswell Field Office, 22 oil wells and 28 natural gas wells. The oil wells represent approximately 1.3 percent of wells drilled in New Mexico per year. The gas wells represent approximately 1.7 percent of wells drilled in New Mexico per year. Both are indicators of the level of activity in the field office. The emissions from Federal oil wells within the field office is approximately 0.03 million metric tons of emissions per year. The emissions from Federal natural gas wells within the field office is approximately 0.29 million metric tons of emissions per year.

Indirect impacts include those resulting from greenhouse gas (GHG) emissions. One result is global mean surface temperatures have increased nearly 1.0°C (1.8°F) from 1890 to 2006 (Goddard Institute for Space Studies, 2007). However, observations and predictive models indicate that average temperature changes are likely to be greater in the Northern Hemisphere. Figure 3.1.1 demonstrates that northern latitudes (above 24° N) have exhibited temperature increases of nearly 1.2°C (2.1°F) since 1900, with nearly a 1.0°C (1.8°F) increase since 1970 alone. Without additional meteorological monitoring systems, it is difficult to determine the spatial and temporal variability and change of climatic conditions, but increasing concentrations of GHG are likely to accelerate the rate of climate change.

Figure 3.1.1 – Annual Mean Temperature Change for Northern Latitudes (24 - 90° N)



Source: Goddard Institute for Space Studies (2007)

The assessment of GHG emissions and climate change is in its formative phase; therefore, it is not yet possible to know with confidence the net impact to climate. However, the Intergovernmental Panel on Climate Change (IPCC 2007) recently concluded that “warming of the climate system is unequivocal” and “most of the observed increase in globally average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic [man-made] greenhouse gas concentrations.”

The lack of scientific tools designed to predict climate change on regional or local scales limits the ability to quantify potential future impacts. However, potential impacts to air quality due to climate change are likely to be varied. For example, if global climate change results in a warmer and drier climate, increased particulate matter impacts could occur due to increased windblown dust from drier and less stable soils. Cool season plant species’ spatial ranges are predicted to move north and to higher elevations, and extinction of endemic threatened/ endangered plants may be accelerated. Due to loss of habitat, or due to competition from other species whose ranges may shift northward, the population of some animal species may be reduced. Less snow at lower elevations would be likely to impact the timing and quantity of snowmelt, which, in turn, could impact aquatic species.

Currently, world-wide demand for oil and natural gas is driving exploration, development and production. The demand is such that should the BLM not lease Federal minerals or not approve an application for permit to drill, development activities and their accompanying GHG emissions would be shifted to other regions of the world. These other regions may or may not have programs in place to reduce GHG emissions.

4.1.2 Mitigation

EPA data shows that improved practices and technology, and changing economics have reduced emissions from oil and gas exploration and development. One of the factors in this improvement is the adoption, by industry of the Best Management Practices proposed by the EPA's Natural Gas Energy Star program. BLM will work with industry to facilitate the expansion of the following BMP's on operations proposed on federal mineral leases.

Production

- Identify and replace high-bleed pneumatic devices
- Install flash tank separators on dehydrators

Distribution Systems

- Implement directed inspection and maintenance programs at gate stations and surface facilities
- Identify and rehabilitate leaky distribution pipes

Transmission Systems

- Implement directed inspection and maintenance programs at compressor stations
- Consider use of turbines at compressor stations in lieu of reciprocating engines

- Identify and replace high-bleed pneumatic devices

Processing

- Replace gas pneumatics with instrument air systems
- Install flash tank separators on glycol dehydrators
- Implement directed inspection and maintenance at gas plants and booster stations

4.2 Cultural Resources

A cultural resource inventory was conducted for the area of effect (05-R-026-A), no Historic Properties were identified.

4.3 Native American Religious Concerns

To date, the areas to be affected by project construction has not been identified by interested tribes as having Native American religious concerns.

4.4 Environmental Justice

4.4.1 Direct and Indirect Impacts

No minority or low income populations would be directly affected in the vicinity of the proposed action. Indirect impacts could include impacts due to overall employment opportunities related to the oil and gas and service support industry in the region, as well as the economic benefits to State and County governments related to royalty payments and severance taxes. Other impacts could include a small increase in activity where vehicular traffic increases in areas used for grazing or hunting. However, these impacts would apply to all public land users in the project area.

4.5 Invasive, Non-native Species

There are no known populations of invasive or noxious weed species on the existing access road and well pad.

4.5.1 Direct and Indirect Impacts

The vehicular traffic that will occur on access road and well pad may unintentionally contribute to the establishment and spread of noxious weeds. Noxious weed seed could be carried to and from the project areas by the drilling rig and transport vehicles. The main mechanism for seed dispersion on the road and well pad is by equipment and vehicles if they were previously used and or driven across or through noxious weed infested areas. The potential for the dissemination of invasive and noxious weed seed may be elevated by the use of equipment typically contracted out to companies that may be from other geographic areas in the region. Washing and decontaminating the equipment prior to utilization on the exiting well pad areas would minimize this impact.

Impacts by noxious weeds will be minimized due to requirements for the company to eradicate the weeds upon discovery. Multiple applications may be required to effectively control the identified populations.

4.5.2 Mitigation

In the event noxious weeds are discovered after the construction of the access road and well pad, measures will be taken to mitigate those impacts.

4.6 Wastes, Hazardous or Solid

4.6.1 Direct and Indirect Impacts

The lease action falls under environmental regulations that impact exploration and production waste management and disposal practices that impose responsibility and liability on the operator for the protection of human health and the environment from harmful waste management practices or discharges.

4.6.2 Mitigation - The Conditions of Approval have mitigation measures that would minimize any potential impacts.

4.9 Water Quality:

Surface;

4.9.1A Direct and Indirect Impacts

Other surface disturbance resulting from the extended construction of the well pad, access road, pipelines, and powerlines can result in degradation of surface water quality and groundwater quality from non-point source pollution, increased soil losses, and increased gully erosion.

The well pad and the access road are existent. Potential direct impacts that would occur due to the constructed well pad, access road, pipelines, and powerlines include increased surface water runoff and off-site sedimentation brought about by soil disturbance: increased salt loading and water quality impairment of surface waters; channel morphology changes due to road and pipeline crossings; and possible contamination of surface waters by produced water. The magnitude of these impacts to water resources would depend on the proximity of the disturbance to the drainage channel, slope aspect and gradient, degree and area of soil disturbance, soil character, duration and time within which construction activity would occur, and the timely implementation and success or failure of mitigation measures.

Direct impacts would likely decrease in time due to natural stabilization, and reclamation efforts. New construction activities would occur over a relatively short period; therefore, the majority of the disturbance would be intense but short lived.

Direct impacts to surface water quality would be minor, short-term impacts which may occur during storm flow events. Indirect impacts to water-quality related resources, such as fisheries, would not occur.

Petroleum products and other chemicals, accidentally spilled, could result in surface and groundwater contamination. Authorization of the proposed projects would require full compliance with BLM directives and stipulations that relate to surface and groundwater protection.

4.9.2A Mitigation

The use of a plastic-lined reserve pit would reduce or eliminate seepage of drilling fluid into the soil and eventually reaching groundwater. Spills or produced fluids (e.g., saltwater, oil, and/or condensate in the event of a breach, overflow, or spill from storage tanks) could result in contamination of the soil onsite, or offsite, and may potentially impact surface and groundwater resources in the long term.

B. Groundwater;

4.9.1B Direct and Indirect Impacts

Petroleum products and other chemicals, accidentally leaked through casing, could result in surface and groundwater contamination. Similarly, possible leaks from reserve and evaporation pits could degrade surface and ground water quality. Authorization of the proposed projects would require full compliance with BLM directives and stipulations that relate to surface and groundwater protection.

4.9.2B Mitigation

The casing and cementing requirements imposed on the proposed well would reduce or eliminate the potential for groundwater contamination from drilling muds and other surface sources.

The use of a plastic-lined reserve pit would reduce or eliminate seepage of drilling fluid into the soil and eventually reaching groundwater. Spills or produced fluids (e.g., saltwater, oil, and/or condensate in the event of a breach, overflow, or spill from storage tanks) could result in contamination of the soil onsite, or offsite, and may potentially impact surface and groundwater resources in the long term.

4.10 General Topography/Surface Geology

The surface disturbance anticipated from the construction of the well pad and access road would have minimal impacts on the area of the operations. No major land or soil displacement would occur from the cradle to grave operations associated with construction of the access road and well pad.

4.10.1 Direct and Indirect Impacts

Direct impacts would result from the removal of the surface soils (topsoil) during construction of the well pad and access road. The consequential earth moving activities would indirectly impact the vegetation and would cause the fragmentation of the surface habitat where small animals live in the project area.

4.10.2 Mitigation

The inclusion of mitigation measures to conserve the landscape as much as possible in the Conditions of Approval would lessen the impacts from the surface disturbance activities on this project.

4.11 Mineral Resources

Mineral material for surfacing the access road and well pad will be purchased from a private source.

4.12 Soil

4.12.1 Direct and Indirect Impacts

The access road and well pad are preexisting and no substratum soils are exposed. (See -Table 4.0 for Summary of Disturbance).

Direct impacts resulting from the constructed well pad and access road is the removal of vegetation, exposure of the soil, mixing of horizons, compaction, loss of top soil productivity and susceptibility to wind and water erosion. Wind erosion would be expected to be a minor contributor to soil erosion with the possible exception of dust from vehicle traffic. These impacts could result in increased indirect impacts such as runoff, erosion and off-site sedimentation. Activities that could cause these types of indirect impacts are new operations that are conducive to well site operations, vehicular travel on the access road, new gas pipeline construction and production facility operations.

Contamination of soil from drilling and production wastes mixed into soil or spilled on the soil surfaces could cause a long-term reduction in site productivity. Some of these direct impacts can be reduced or avoided through proper design, construction and maintenance and implementation of best management practices.

Additional soil impacts associated with lease development would occur when heavy precipitation causes water erosion damage. When water saturated segment(s) on the access road become impassable, vehicles may still be driven over the road. Consequently, deep tire ruts would develop. Where impassable segments are created from deep rutting, unauthorized driving may occur outside the designated route of the access road.

4.12.2 Mitigation

The impact to the soils would be remedied when upon reclamation of the disturbed areas the vegetation is re-established on the well pad and access road.

Upon abandonment of the well and/or when the access road is no longer in service the Authorized Officer shall issue instructions and/or orders for surface reclamation/restoration of the disturbed areas as described in the attached Conditions of Approval.

Regular road maintenance would alleviate potential impacts to the access road from water erosion damage.

4.13 Watershed - Hydrology

4.13.1 Direct and Indirect Impacts

The surface disturbance activities that occurred from the construction of the well pad, access road, pipelines and powerlines can result in long term and short term alterations to the hydrologic regime. Peak and low flow of perennial streams, ephemeral, and intermittent rivers and streams would be directly affected by an increase in impervious surfaces resulting from the construction of the well pad and road. The potential hydrologic effects to peak flow is reduced infiltration where surface flows can move more quickly to perennial or ephemeral rivers and streams, causing peak flow to occur earlier and be larger. Increased magnitude and volume of peak flow can cause bank erosion, channel widening, downward incision and disconnection from the floodplain. The potential hydrologic effects to low flow is reduced surface storage and groundwater recharge, resulting in reduced baseflow to perennial, ephemeral, and intermittent rivers and streams. The direct impact would be that hydrologic processes may be altered where the perennial, ephemeral, and intermittent river and stream system responds by changing physical parameters, such as channel configuration. These changes may in turn impact chemical parameters and ultimately the aquatic ecosystem.

Long term direct and indirect impacts to the watershed and hydrology would continue for the life of the well and would decrease once the surfacing material has been removed from the well pad and access road. Short term direct and indirect impacts to the watershed and hydrology would occur from access roads that are not surfaced with material and would likely decrease in time due to reclamation efforts.

4.13.2 Mitigation

The operator will stockpile the topsoil from the surface of the well pad which will later be used for surface reclamation of the well pad. Upon abandonment of the well and/or when the access road is no longer in service the Authorized Officer will issue instructions and/or orders for surface reclamation/restoration of the disturbed areas as described in the attached Conditions of Approval.

4.14 Vegetation

4.14.1 Direct and Indirect Impacts

The access road and well pad are preexisting and the native vegetation has been removed. (See - Table 4.0 for Summary of Disturbance).

If it is a producing well, reclamation would not commence until the well is a depleted producer and is plugged and abandoned. Vegetative recovery on the access road and well pad would depend on life of the well. Native vegetation would encroach on the well pad over time and where high volumes of vehicular traffic occur, the areas driven over would remain unvegetated. If the well is drilled as a dry hole and is plugged, the reclamation of the access road and well pad would immediately follow. The impacts to the vegetation would be short-term if the reclamation efforts of the disturbed areas have re-vegetated successfully within a few years.

4.14.2 Mitigation

No impact to vegetation is anticipated. However measures will be taken in the event impacts to vegetation are found.

4.15 Livestock Grazing/Range

4.15.1 Direct and Indirect Impacts

During the drilling phases of the well, there would be some minor disruption of livestock grazing in the pastures, specifically on the well pad. The increase of vehicle traffic within the project areas could lead to conflicts with livestock.

4.15.2 Mitigation

If any conflicts with livestock do arise as a result of the access road and well pad utilization, mitigation measures will be taken, and consultation with the allottee will mitigate those impacts.

4.16 Wildlife

4.16.1 Direct and Indirect Impacts

Some small wildlife species may have been killed and their dens or nests destroyed when the access road and well pad were constructed. The constructed access road and well pad has caused fragmentation of wildlife habitat. The short-term negative impact to wildlife would have occurred during the construction phase of the operations would be due to noise and habitat destruction. In general, most wildlife species would become habituated to the new facilities. For other wildlife species with a low tolerance to activities, the operations on the well pad would continue to displace wildlife from the area due to disturbances by the high volumes of vehicle traffic during equipment maintenance. Upon abandonment of the well, the area would revegetate and wildlife would return to previous levels.

4.16.2 Mitigation

The conditions of approval would alleviate most losses of wildlife species, such as; netting storage tanks, installation or other modifications of cones on separator stacks, and timing stipulations.

4.17 Recreation

Oil and gas activities would have little or no affect on recreational opportunities within this area. Large blocks of public land would allow recreationist to use public land and avoid the oil and gas facilities within the area.

4.17.1 Direct and Indirect Impacts - None

4.17.2 Mitigation - None

4.18 Visual Resources

Facilities, such as condensate and produced water or oil storage tanks that rise above eight feet, would provide a geometrically strong vertical and horizontal visual contrast in form and line to the characteristic landscape and vegetation, which have flat, horizontal to slightly rolling form and line. The existing access road, well pad and other ancillary facilities would slightly modify the existing area visual resources. The proposed action is located in an area designated VRM Class IV.

The objective of Class IV is to: “Provide for management activities which require major modification of the existing landscape character...Every attempt, however, should be made to reduce or eliminate activity impacts through careful location, minimal disturbance, and repeating the basic landscape elements.”

Through color manipulation, by painting well facilities to blend with the rolling to flat vegetative and/or landform setting with a gray-green to brownish color, the view is expected to favorably blend with the form, line, color and texture of the existing landscape. The flat color Olive Drab from the standard or supplemental environmental colors also closely approximates the brownish color of the setting. All facilities, including the meter building, would be painted this color.

Cumulative adverse visual impacts can be avoided by gradually moving into a more appropriate vegetative/landform setting color scheme.

4. 18.1 Direct and Indirect Impacts

Through color manipulation, by painting well facilities to blend with the rolling to flat vegetative and/or landform setting with a gray-green to brownish color, the view is expected to favorably blend with the form, line, color and texture of the existing landscape

4.18.2 Mitigation

The flat color Olive Drab 18-0622 TPX from the Supplemental Environmental Colors Chart is to be used on all facilities to closely approximate the vegetation within the setting. All facilities, including the meter building, would be painted this color.

4.19 Cave/Karst

While the proposed action is located in the *High Potential Karst Area*, no surface cave/karst features were observed in the immediate vicinity of the proposed action.

4. 19.1 Direct and Indirect Impacts - None

4. 19.2 Mitigation - None

4.20 Public Health and Safety

4.20.1 Direct and Indirect Impacts

The construction and drilling operations will be conducted in a safe workman like manner and no impacts are anticipated to occur when the operations are conducted in a professional constructive manner.

4.20.2 Mitigation - non-required

4.21 Cumulative Impacts

The leased area of the proposed action has been industrialized with oil and gas well development. The surface disturbance for each project that has been permitted has created a spreading out of land use fragmentation. The cumulative impacts fluctuate with the gradual reclamation of well abandonments and the creation of new additional surface disturbances in the construction of new access roads and well pads. The on going process of restoration of abandonments and creating new disturbances for drilling new wells gradually accumulates as the minerals are extracted from the land. Preserving as much land as possible and applying appropriate mitigation measures will alleviate the cumulative impacts.

Analysis of cumulative impacts for reasonably foreseeable development (RFD) of oil and gas wells on public lands in the Roswell Field Office was presented in the 1994 Draft Roswell Resource Management Plan (RMP). The RFD was validated in the 2006 Draft Special Status Species RMP Amendment. Potential development of all available federal minerals in the field office, including those in the proposed lease parcels, was included as part of the analysis.

Greenhouse gas (GHG) emissions from all oil and gas wells within the field office total approximately 4.7 million metric tons annually.

The reasonable and foreseeable development (RFD) was based on drilling activity from 1975 through 2005 and was projected 20 years in the future. Therefore, the GHG emissions for oil and gas development for this time period are approximately 235 million metric tons.

This total is most likely an over estimate based on four factors. One factor is that GHG emissions have gradually grown over the past 50 years and the number used in these calculations was an estimate of current emissions. The second factor is the future GHG emissions will decrease as the best management practices are implemented. The third factor is the calculations presented here do not take into account wells that go out of production and are plugged and abandoned. The fourth factor is the calculations shown here are based on the number of wells drilled per year and not every well drilled is a producer. Non-producers or dry holes would not produce GHG emissions.

Finally, the EPA estimates the total GHG emissions from oil and natural gas production, procession, transmission and distribution account for only 11 percent of the total GHG emissions nationwide.

While it is likely that there will be no significant cumulative impact from the proposed actions, continued oil and gas development, and other surface-disturbing activities in these areas, may potentially have negative cumulative impacts on vegetation, soil, water, livestock, wildlife and visual resources.

5.0 Consultation/Coordination

This section includes individuals or organizations from the public and its' users, the interdisciplinary team, and permittees that were contacted during the development of this document. Onsite inspection(s) was conducted on (4/23/08)

Table 5.1 Summary of Public Contacts Made During Preparation of Document and Interdisciplinary Team

Public Contact	Title	Organization	Present at Onsite?
Mr. Kurt Hood	Drilling & Workover Technician	Nadel & Gussman L.L.C.	Present
Mr. Billy Hill	Surface Land Owner	Rancher	Present
ID Team Member	Title	Organization	Present at Onsite?
Richard G. Hill	Environmental Protection Specialist	RFO	Present
Brian Novosak	Natural Resource Specialist	RFO	Present
Scott Sanderford	Realty Specialist	RFO	Present
Phil Watts	GIS Specialist	RFO	Present

6.0 Appendices

The Roswell Field Office; Well Location Map (Exhibit A), Pecos District-RFO, Conditions of Approval, and the special requirements derived from this EA, would be applied to this proposed action to minimize the surface disturbance and conserve the surrounding landscape.

6.1 References

U.S. Department of the Interior, Bureau of Land Management. January 1997, *Proposed Resource Management Plan and Final Environmental Impact Statement*. Roswell, New Mexico.

U.S. Department of the Interior, Bureau of Land Management. October 10, 1997, *Resource Management Plan Record of Decision*. Roswell, New Mexico.

6.1.1 APD, Complete

6.1.2 Authorities

Code of Federal Regulations (43 CFR) 3160 and (43 CFR) 2800

40 CFR All Parts and Sections inclusive Protection of Environment, Revised as of July 1, 2001.

43 CFR, All Parts and Sections inclusive - Public Lands: Interior. Revised as of October 1, 2000.

U.S. Department of the Interior, Bureau of Land Management and Office of the Solicitor (editors). 2001. The Federal Land Policy and Management Act, as amended. Public Law 94-579.

Mineral Leasing Act of 1920, as amended (30 U.S.C. 181 et seq.)

6.1.3 Other Supporting Information

Department of the Interior, Bureau of Land Management

Roswell Field Office
2909 W. Second Street
Roswell, New Mexico 88201

Project: Cazador Federal Com. #1
Location: Section: 8, T. 13 S., R. 27 E.
Applicant: Nadel and Gussman Permian, L.L.C.
Roswell Field Office

EA Log Number: NM-510-08-91
Lease Number: NMNM-108037
File Code: 3160 & 2800
Chaves County New Mexico

Finding of No Significant Impact

Based upon the analysis of potential environmental impacts contained in the attached environmental assessment, I have determined the proposed action is not expected to have significant impacts on the environment and the preparation environmental impact statement is not warranted.

Decision Record

Based upon the analysis, the proposed Cazador Federal Com. #1 gas well, located 2034' FNL & 660' FEL, Section 8, T. 13 S., R. 27 E., Chaves County, New Mexico.

Additionally, NM-120595, a renewable right-of-way, for an off-lease access road is approved for a term not to exceed 30 years.

Rational: The Bureau of Land Management staff has reviewed the environmental assessment and identified site-specific mitigation measures to avoid or minimize surface impacts resulting from the construction of this project. The well pad and access road will remain as long term impacts. The cumulative impacts to the environment from existing and new development have been identified.

This proposed action is in compliance with the 1997 Roswell Resource Management Plan, as amended (RMPA). This plan has been reviewed to determine if the proposed action conforms to the land-use planning terms and conditions required by 43 CFR 1610.5. This action does not conflict with existing Chaves County land-use planning or zoning.

Administrative Review and Appeal: Under BLM regulations, this Decision Record (DR) is subject to administrative review in accordance with 43 CFR 3165. Any request for administrative review of this DR must include information required under 43 CFR 3165.3(b) (State Director Review), including all supporting documentation.

Such a request must be filed in writing with the State Director, Bureau of Land Management, 1474 Rodeo Road, Santa Fe, NM 87505, no later than 20 business days after this DR is received or considered to have been received.

Any party who is adversely affected by the State Director's decision may appeal that decision to the Interior Board of Land Appeals, as provided in 43 CFR 3165.4.

Prepared by:

Richard Hill

Date 6/12/08

Richard Hill, Environmental Protection Specialist

Approved by:

Angel Mayes

Date JUN 12 2008

For Angel Mayes, Assistant Field Manager, Lands & Minerals

PECOS DISTRICT - RFO CONDITIONS OF APPROVAL

6/12/08

OPERATORS NAME: Nadel and Gussman Permian, L.L.C.

LEASE NO.: NMNM-108037

WELL NAME & NO: Cazador Federal Com. #1

SURFACE HOLE FOOTAGE: 2034' FNL & 660' FEL

LOCATION: Section 8, T. 13 S., R. 27 E., NMPM

COUNTY: Chaves County, New Mexico

GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

I. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD (Filing of a Sundry Notice is required for this 60 day extension).

II. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

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III. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations (access road and/or well pad). Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

IV. CONSTRUCTION

A. NOTIFICATION:

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Roswell Field Office at (505) 627-0247 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved Application for Permit to Drill and Conditions of Approval on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL:

The existing well pad does not have soil to stockpile. No topsoil stockpile is required.

C. CLOSED-LOOP SYSTEM:

Closed-loop system is required for drilling operations: No Pits Allowed.

The operator shall properly dispose of drilling contents at an authorized disposal site.

The historic reserve pit located on the north side of the well pad shall not be disturbed. During the conduct of the drilling phase or during production operations the operator shall avoid any impact to the historic reserve pit. If the historic reserve pit is breached or ruptured in any way during the conduct of operations on this well the operator shall obtain NMOCD Rule 50 pit closure approval.

D. FEDERAL MINERAL MATERIALS PIT:

If the operator elects to surface the access road and/or well pad, mineral materials extracted during construction of the reserve pit may be used for surfacing the well pad and access road and other facilities on the lease.

Payment shall be made to the BLM prior to removal of any additional federal mineral materials from any site other than the reserve pit. Call the Roswell Field Office at (505) 627-0236.

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E. WELL PAD SURFACING:

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.

The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational need.

F. ON LEASE ACCESS ROADS:**Road Egress and Ingress**

The existing access road shall egress and ingress the southeast corner of the well pad. No new access road construction is required.

Road Width

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed thirty (30) feet.

Surfacing

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

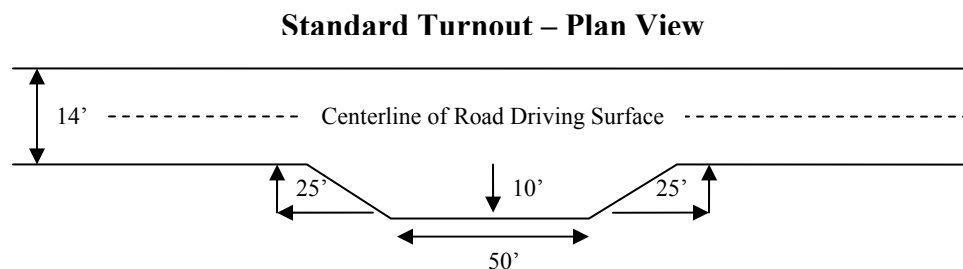
Crowning

Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

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Turnouts

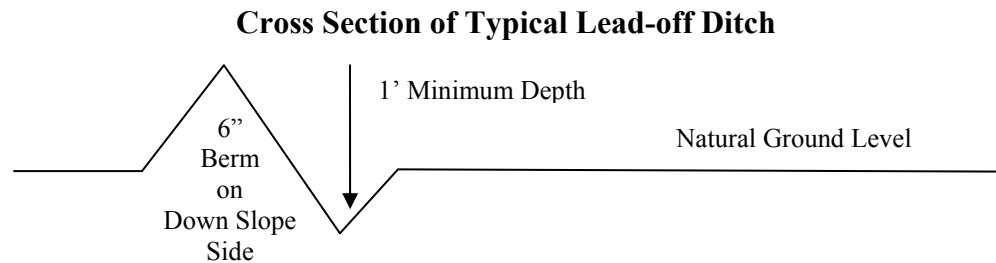
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:



Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula For Spacing Interval Of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

-4-

Cattleguards

Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations.

Fence Requirement

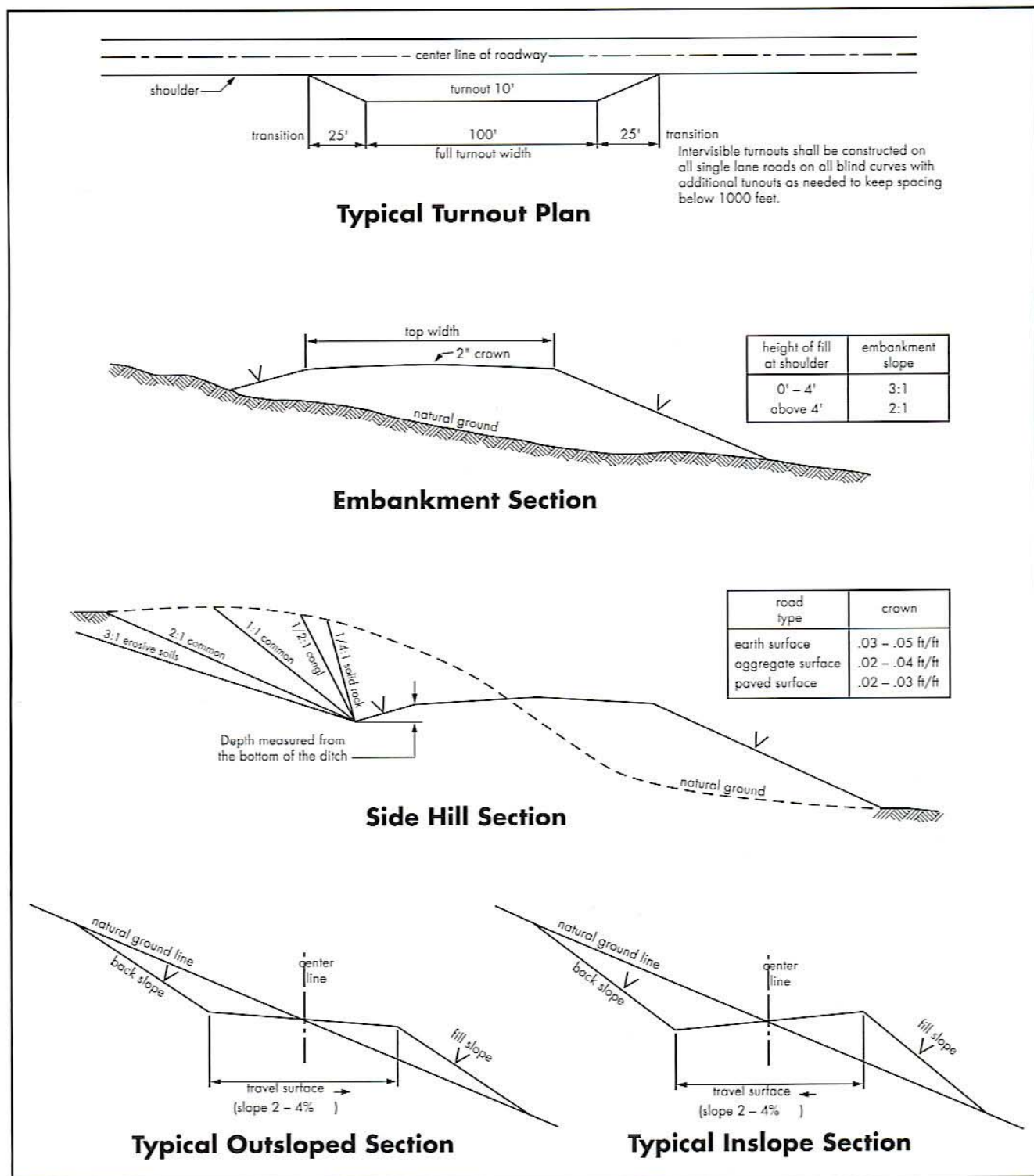
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Figure 1 – Cross Sections and Plans For Typical Road Sections



V. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

1. Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201. During office hours call (575) 627-0258. After office hours call (575) 627-0205. Engineer on call phone (after hours): (575) 626-5749.

2. The Roswell Field Office is to be notified a minimum of 4 hours in advance for a representative to witness:

- a. Re-Entry
- b. Cementing casing: 5-1/2 inch
- c. BOPE Tests

3. A Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the BLM. The effective date of the agreement shall be prior to any sales.

B. CASING

1. Minimum required fill of cement behind the 5-1/2 inch production casing is **sufficient to tie back 500 feet above the uppermost perforation in the pay zone.**

C. PRESSURE CONTROL:

1. Before drilling into the **cement plug set below the base of the 13-3/8 inch surface casing from 600 feet to 435 feet,** the blowout preventer assembly shall consist of a minimum of One Annular Preventer or Two Ram-Type Preventers and a Kelly Cock/Stabbing Valve.

2. Before drilling into the **cement plug set below the base of the 13-3/8 inch surface casing from 600 feet to 435 feet,** minimum working pressure of the blowout preventer and related equipment (BOPE) shall be **2000** psi.

3. The BOPE shall be installed before drilling into the **cement plug set at the base of the 9-5/8 inch intermediate casing from 1350 feet to 1250 feet,** and shall be tested as described in Onshore Order No. 2. Any equipment failing to test satisfactorily shall be repaired or replaced.

a. The BLM Roswell Field office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

b. The tests shall be done by an independent service company.

c. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

- d. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the BLM Roswell Field Office at 2909 West Second Street, Roswell, New Mexico 88201.
- e. Testing fluid must be water or an appropriate clear liquid suitable for sub-freezing temperatures. Use of drilling mud for testing is not permitted since it can mask small leaks.
- f. Testing must be done in a safe workman like manner. Hard line connections shall be required.

VI. PRODUCTION

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Containment Structures

The containment structure shall be constructed to hold the capacity of the entire contents of the largest tank, plus 24 hour production, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

Painting Requirement

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, Olive Drab, Munsell Soil Color Chart 18-0622 TPX.

VII. INTERIM RECLAMATION & RESERVE PIT CLOSURE

A. INTERIM RECLAMATION

If the well is a producer, interim reclamation shall be conducted on the well site in accordance with the orders of the Authorized Officer. The operator shall submit a Sundry Notices and Reports on Wells (Notice of Intent), Form 3160-5, prior to conducting interim reclamation.

During the life of the development, all disturbed areas not needed for active support of production operations should undergo “interim” reclamation in order to minimize the environmental impacts of development on other resources and uses.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche may be used in road repairs, fire walls or for building other roads and locations.

In addition, in order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

B. RECLAMATION SEED MIXTURE

At the time well is reclaimed, operators should work with BLM surface management specialists to devise the best strategies to reduce the size of the location. Any reductions should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

The well location shall be recontoured, all trash removed, and reseeded as follows:

Ecological Site: Shallow Sand SD-3 & Sandy SD-3

Common Name and Preferred Variety	Scientific Name	Pounds of Pure Live Seed Per Acre
Black grama	<i>(Bouteloua eriopoda)</i>	3.00 Lbs.
or Blue grama,	<i>(Bouteloua gracilis)</i>	
Sideoats grama	<i>(Bouteloua curtipendula)</i>	2.00 Lbs.
Sand dropseed	<i>(Sporobolus cryptandrus)</i>	1.50 Lbs.
or Mesa dropseed	<i>(S. flexuosus)</i>	
or Spike dropseed	<i>(S. contractus)</i>	
Desert or Scarlet	<i>(Sphaeralcea ambigua)</i>	1.00 Lb.
Globemallow or	<i>(S. coccinea)</i>	
Croton	<i>(Croton spp.)</i>	<u>1.00 Lbs.</u>
TOTAL POUNDS PURE LIVE SEED (pls) PER ACRE		8.50 Lbs.

IF ONE SPECIES IS NOT AVAILABLE, INCREASE ALL OTHERS PROPORTIONATELY
Use no less than 4 species, including 1 forb. No less than 8.5 pounds pls per acre shall be applied
Certified Weed Free Seed

VIII. FINAL ABANDONMENT & REHABILITATION REQUIREMENTS

Upon abandonment of the well and/or when the access road is no longer in service the Authorized Officer shall issue instructions and/or orders for surface reclamation and restoration of all disturbed areas.

On private surface/federal mineral estate land the reclamation procedures on the road and well pad shall be accomplished in accordance with the Private Surface Land Owner agreements.